

CLAIMS

1. A door apparatus for a drawer for a drawer type refrigerator which can be put in and taken out from the interior of a main body of the refrigerator through guidance of rails, comprising:
 - 5 a door with a thermally isolating layer;
 - a frame disposed in the rear of the door to be simultaneously put in and taken out from the interior of the main body together with the door and provided with a storage space for accommodating stored goods;
 - 10 a rotating means for connecting the door to a front end of the frame and causing the door to rotate through a predetermined angle with respect to the frame; and
 - a rotation limiting means for connecting the door to the frame and selectively limiting the rotation of the door.
- 15 2. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises locking portions and tilting locks selectively and elastically deformed by the locking portions, the locking portions and the tilting locks being provided at mutually corresponding positions in the frame and the door.
- 20 3. The door apparatus as claimed in claim 2, wherein each of the tilting locks comprises:
 - 25 a base plate;
 - an elastically-deformable resilient piece connected to one end of the base plate and spaced apart by a predetermined distance from a top surface of the base plate; and
 - a locking step provided on a top surface of the resilient piece to be caught by the locking portion when a force smaller than a force required for elastically deforming the resilient piece is applied.
- 30 4. The door apparatus as claimed in claim 3, further comprising a spacer insertable into between the base plate and the resilient piece for preventing the resilient piece from

being elastically deformed.

5. The door apparatus as claimed in claim 1, wherein the rotation limiting means is provided at mutually corresponding positions in the door and the frame and uses magnetic forces generated by supply of electric power.

6. The door apparatus as claimed in claim 5, wherein the rotation limiting means comprises:

10 a control button provided at a side in a front face of the door;
electromagnets activated by receiving the electric power through the operation of the control button and installed on a rear face of the door; and
close contact plates which are made of a magnetic material and provided at positions in the frame corresponding to those of the electromagnets and come into close contact with the rear face of the door when the door is closed.

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7. The door apparatus as claimed in claim 5, wherein the rotation limiting means comprises:

20 a control button provided at a side in a front face of the door;
solenoids activated by receiving the electric power through the operation of the control button and installed on a rear face of the door; and
close contact plates by which plungers of the solenoids are caught and which come into close contact with the rear face of the door when the door is closed.

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8. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises:

close contact plates which are formed on the front end of the frame and which come into close contact with the rear face of the door when the door is closed; and
an operating lever of which a central portion is installed within the door to pivot on a hinge shaft and which includes an operating portion protruding forward beyond a front face of the door and a catching portion formed at a rear end of the operating lever to

be caught by the relevant close contact plate.

9. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises:

5 a locking lever which is installed at a side of the front end of the frame such that a free end thereof can rotate about a rotation shaft, and has a catching hook at the free end; and

10 a tilting lock which is installed at a position in a rear face of the door corresponding to that of the locking lever and has a locking step by which the catching hook is caught.

10. The door apparatus as claimed in claim 9, wherein the locking lever is further provided with a knob for facilitating the operation of the locking lever.

15 11. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises:

a locking screw selectively fastened to a locking hole provided at a side of the front end of the frame; and

20 a tilting lock which has a mounting piece mounted on a rear face of the door and a fastening piece perforated to form a locking hole at a position therein corresponding to that of the locking hole of the frame when the door is closed.

12. The door apparatus as claimed in claim 11, wherein a storage hole is further formed at another side of the frame to store the locking screw therein.

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13. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises:

a connection link including first and second links for connecting the door to the frame; and

30 a fastener selectively fastened to the frame while penetrating through the

connection link so as to limit folding of the connection link.

14. The door apparatus as claimed in claim 13, wherein a storage hole is further formed at a side of the frame to store the fastener therein.

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15. The door apparatus as claimed in claim 1, wherein the rotation limiting means comprises:

a connection link including first and second links for connecting the door to the frame; and

10 a selector selectively fastened to one of a plurality of selection holes formed at a predetermined interval in a height direction of the frame so as to regulate a folded range of the connection link.

16. A door apparatus for a drawer for a drawer type refrigerator which can be put in
15 and taken out from the interior of a main body of the refrigerator through guidance of rails, comprising:

a door with a thermally isolating layer;

20 a frame disposed in the rear of the door to be simultaneously put in and taken out from the interior of the main body together with the door and provided with a storage space for accommodating stored goods;

a rotating means for connecting the door to a front end of the frame and causing the door to rotate through a predetermined angle with respect to the frame; and

a connection link including a plurality of links for connecting the door to the front end of the frame.

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17. The door apparatus as claimed in claim 16, wherein the connection link includes first and second links connected to the door and the frame, respectively, and the door apparatus further comprises a fastener selectively fastened to the frame while penetrating through a portion of the connection link so as to limit folding of the connection link.

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18. The door apparatus as claimed in claim 16, wherein the connection link includes first and second links connected to the door and the frame, respectively, and the door apparatus further comprises a selector selectively fastened to one of a plurality of selection holes formed at a predetermined interval in a height direction of the frame so as to regulate 5 a folded range of the connection link.

19. A door apparatus for a drawer for a drawer type refrigerator which can be put in and taken out from the interior of a main body of the refrigerator through guidance of rails, comprising:

10 a door with a thermally isolating layer;

a frame disposed in the rear of the door to be simultaneously put in and taken out from the interior of the main body together with the door and provided with a storage space for accommodating stored goods;

15 hinge units of which each includes a plurality of links and exerts an elastic force so as to connect the door to a front end of the frame and cause the door to rotate through a predetermined angle with respect to the frame; and

a rotation limiting means for connecting the door to the frame and selectively limiting the rotation of the door.

20. 20. The door apparatus as claimed in claim 19, wherein a rear face of the door is further provided with guide plates for shielding outer sides of the hinge units.

21. A door apparatus for a drawer for a drawer type refrigerator which can be put in and taken out from the interior of a main body of the refrigerator through guidance of rails, 25 comprising:

a door with a thermally isolating layer;

a frame disposed in the rear of the door to be simultaneously put in and taken out from the interior of the main body together with the door and provided with a storage space for accommodating stored goods;

30 a rotating means for connecting the door to a front end of the frame and causing

the door to rotate through a predetermined angle with respect to the frame; and

a shock-absorbing means provided between a rear face of the door and the front end of the frame for absorbing an impact generated when the door comes into close contact with the frame.

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22. The door apparatus as claimed in claim 21, wherein the shock-absorbing means is a shock-absorbing member installed on the front end of the frame that faces the rear face of the door.